

June 13, 2014

MEMORANDUM

To: Tom Huetteman, Assistant Director, RCRA Branch, Land Division, EPA Region IX

From: Doug Daugherty, Eric Wood, Yi Tian, ENVIRON

Cc: Steve Armann and Carmen Santos, EPA Region IX
Sandra Lyon and Jan Maez, SMMUSD

Re: **Additional Information on the Selection of Representative Rooms for Air/Wipe Testing
– Revision 1**

The following was prepared by ENVIRON and is intended to provide additional information on the collection of air and wipe samples at Malibu High School (MHS)¹ during the summer of 2014 (June 16 through August 8) as requested by EPA in its June 4, 2014 letter to SMMUSD (specifically, the request related to the sampling plan for MHS and comments A.2 and A.3).

The goal is to obtain samples from a sufficient number of locations and site-specific conditions to:

- 1) Serve as representative of the variety of potentially PCB-containing materials², conditions, and possible exposure pathways (inhalation, dermal, and incidental ingestion);
- 2) Address specific concerns of the community and staff at MHS;
- 3) Evaluate previous sampling efforts;
- 4) Assess effectiveness of Best Management Practices cleaning; and
- 5) Draw scientific conclusions on the potential presence of PCB-containing building materials and the potential for exposures to PCBs at MHS.

I. Overall Process for MHS

- a. Schedule needs to be based on a Building (or Room Group) by Building basis in a rolling parallel process to accommodate the scale of the work to be conducted during the summer (from June 16 to August 8) – see accompanying schedule.
- b. General Sequence for a Building/Room Group
 - i. Building Inspection by Building or Room Groups
 - ii. Determine representative rooms in that Building or Room Groups for pre-cleaning air and wipe sampling
 - iii. Conduct pre-cleaning air and wipe sampling in representative rooms in that Building or Room Groups

¹ Although not part of the EPA's June 4th request involving MHS, the process outline in this document also covers the work to be conducted at Juan Cabrillo Elementary School (JCES) that will be conducted during the same time period as the MHS efforts.

² For purposes of this document, PCB-containing shall mean materials that contain any measurable concentration of PCBs detectable using common analytical procedures for air and wipe samples.

- iv. HVAC/Duct cleaning
 - v. Room BMP cleaning
 - vi. Conduct post-cleaning air and wipe sampling in representative rooms in that Building or Room Groups. Post-cleaning sampling will be conducted in the same rooms as the pre-cleaning sampling, but post-cleaning sampling may also include additional rooms or locations without pre-cleaning sampling, as recommended by EPA³, since those results are expected to be more representative of exposure levels that will remain following building re-occupancy.
 - vii. Schedule also includes accommodations for some re-cleaning and additional testing as needed, including rooms not sampled if the data suggests the need to expand the sampling.
- c. Current assumption is that up to 1/3 of all rooms (inclusive of both MHS and JCES) will be sampled (subject to change based on information/experience during the summer inspections)
- i. Up to approximately 45 pre-BMP air samples and up to approximately 65 post-BMP air samples. Outdoor/background, field blanks, and duplicates are included in the counts. Additional samples will be collected if the initial samples exceed relevant health-based benchmarks.
 - ii. Up to approximately 60 pre-BMP wipe samples and up to approximately 230 post-BMP wipe samples, assuming two to five wipe samples per room selected. Field blanks and duplicates are included in the counts. Additional samples will be collected if the initial samples exceed relevant health-based benchmarks
 - iii. Per EPA's recommendation⁴, pre-cleaning sampling will be conducted in a smaller subset of representative rooms than post-cleaning sampling, as described in b.vi above.
 - iv. All pre-1981 buildings will be sampled.
 - v. All air sampling will be conducted with the windows closed and HVAC off.
- d. Methods to be used
- i. Air samples will be collected using the general methods previously approved by EPA for testing done in January. The air samples will be collected without a pre-filter and will be analyzed for Aroclors using EPA Method TO-10A⁵, which is approved by EPA in its January 27, 2014 letter to the SMMUSD. The laboratory method reporting limit for each of the aroclors is 500 ng/PUF, which translates into approximately 0.07 µg/m³ assuming a sample flow rate of 5 liters per minute (L/min) collected over 24 hours. Per EPA's recommendation⁶, the laboratory will follow QA/QC procedures similar to those outlined in EPA Method 8082A.
 - ii. Wipe samples will be collected on gauze pads using the Standard Wipe Test described in 40 CFR 761.123 and will be analyzed using EPA Method 8082 for Aroclors. This method was used by EPA when its staff collected wipe samples from MHS, as indicated in EPA's letter to the SMMUSD, dated March 21, 2014. The laboratory method reporting limit for

³ June 11, 2014 email from T. Huetteman of EPA to D. Daugherty of ENVIRON.

⁴ Ibid.

⁵ June 12, 2014 email from T. Huetteman of EPA to D. Daugherty of ENVIRON.

⁶ June 12, 2014 phone conversation between T. Huetteman of EPA and Y. Tian of ENVIRON.

each of the aroclors is 0.1 µg/sample (except for Aroclor 1221, which is 0.2 µg/sample), which translates into approximately 1 ng/100cm² (or 2 ng/100cm² for Aroclor 1221).

1. As many samples require next day service, wipe samples will be sonicated in the extraction solvent rather than using the soxhlet extraction procedure. Based on information from ALS Laboratory in Salt Lake City, Utah, the spike recoveries are essentially identical for either method. The laboratory will aim to achieve a surrogate recovery of at least 65% and a matrix spike recovery on the same wipe type of at least 75%. If the results are below these targets (i.e., low biased), the validity and acceptability of the data will be evaluated,
2. Representative materials and types of surfaces for wipe samples
 - Caulk and glazing on windows and doors (deteriorating and in good condition)
 - Vertical surfaces (e.g., walls) with lower exposure potential
 - Horizontal surfaces with higher exposure potential

The intent of these samples is to measure dust for assessing exposures due to direct contact with the material/surface. Note that the use of hexane rather than other solvents (e.g., HPLC grade 2-propanol) may cause PCBs to be more readily extracted from certain materials such as caulk and glazing. At the recommendation of EPA⁷, gauze pads used to collect surface wipe samples from caulk and glazing will be wetted with HPLC grade 2-propanol, and all other wipe samples will be collected with gauze pads wetted with hexane.

II. Factors to be considered in selecting representative rooms for air and wipe testing

- a. Information obtained through meetings with MHS⁸ Staff conducted on May 21, 2014.
 - i. Information ranged from cleanliness of rooms to health concerns in various rooms.
- b. Results of prior sampling.
 - i. Sampling (air and wipe) will include Library, Rooms 1, 5, 8, where previous caulk sample results indicated PCB concentrations greater than 50 ppm.
 - ii. Rooms that were sampled previously by The Phylmar Group will be included during the selection process.
- c. Room usage
 - i. Frequency of occupation
 - ii. Age of occupants
 - iii. Exposure potential to surfaces in room
- d. Building materials that may potentially contain PCBs identified during the Building Inspections
 - i. Results of the inventory effort on the types and locations of potential PCB-containing materials

⁷ June 11, 2014 email from T. Huettelman of EPA to D. Daugherty of ENVIRON.

⁸ And JCES staff.

- ii. Similarities in construction (e.g., bathrooms, classrooms, lab classrooms, administrative rooms, etc.)
- iii. Number, location, and type of windows in room
- iv. Type of fixtures in room (e.g., presence of sinks)
- v. Layout of room in regards to exposure potential
- vi. Condition of building materials (e.g., flaking caulk, oily stains in light fixtures, other indications of potential PCB contamination)
- vii. Characteristics of HVAC system
- viii. Construction year
- ix. Renovation records, if available

III. Documentation of information and rationale for selection of sampling locations

- a. Information described in Section II will be documented in a matrix during the pre-inspection and building inspection phase of the work. ENVIRON will collect photographic and/or video documentation during the inspection and sampling activities.
- b. Selection of representative rooms will be based on this information and both the conclusions and rationale for selection will be documented between the end of the inspection and prior to the collection of any pre-cleaning samples in each Building or Room Groups
 - i. Note that higher selection ranking consideration will be given to factors that could indicate higher exposure potential (e.g., types of PCB-containing materials, conditions of the material, exposure potential or concerns, etc).

IV. Documentation of sampling results

- a. Sampling results will be summarized in tabular format over the course of the summer.
- b. Results will be compared to relevant health-based criteria.
- c. If any of the post-cleaning sample results exceed relevant health-based criteria, the schedule allows for some second round of cleaning and then re-testing. All of these results will be presented in the final report.
- d. At the end of the summer effort, ENVIRON will prepare a report that contains a summary of all of the inspection and sampling results, ENVIRON's conclusions from the data, and any recommendations, including additional testing or follow up work if warranted based on the data.